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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,894	01/11/2005	Toshifumi Yoshimine	43888-353	4951
20277 7590 04/05/2007 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			EXAMINER WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/520,894	YOSHIMINE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Monique M. Wills	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

This Office Action is responsive to the Amendment filed January 5, 2007.

Claims 1-3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over

Gyenge et al. U.S. Pat. 7,060,391 in view of Ishikura et al. U.S. Pat. 4,473,623.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gyenge et al. U.S. Pat. 7,060,391 in view of Ishikura et al. U.S. Pat. 4,473,623.

With respect to claims 1 & 3, Gyenge teaches a lead-acid battery with an electrode plate group (col. 6, lines 64-68) comprising: positive electrode plates that each include a positive electrode current collector comprising a Sn-containing lead alloy, and a positive electrode active material retained by said

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positive electrode current collector; negative electrode plates that each include a negative electrode current collector comprising a lead alloy, and a negative electrode active material retained by said negative electrode current collector (col. 6, lines 30-68). The Sn content in said positive electrode current collector is 0.5 to 2% by mass (col. 6, lines 10-15). electrolyte is a free electrolyte that is free from said electrode plate group, and said free electrolyte is in contact with said separators (col. 10, lines 25-35). With respect to claim 2, the Sn content in the positive electrode current collector is 2% by mass (col. 9, lines 35-37).

Gyenge does not expressly disclose impregnating the electrodes with electrolytes. The reference is silent to a pore volume per unit mass of said negative electrode active material is 0.115 to 0.150 cm<sup>3</sup>/g.

However, Ishikura teaches that it is well known in the art to impregnate lead acid electrolytes with electrolyte in order to improve discharge storage characteristics (col. 2, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to impregnate the electrodes of Gyenge with electrolyte, as taught by Ishikura, in order to improve discharge storage characteristics.

With respect to the pore volume per unit mass of the negative electrode, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the instant characteristics, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The skilled artisan recognizes that the pore volume per unit mass of the negative electrode, directly effects gas permeability of the electrode.

### *Response to Arguments*

Applicant contends that the "optimum value" basis for an obviousness rejection can only be relied upon by the Examiner if the prior art first recognizes the modified parameter as a result-effective variable. Therefore, the Examiner's position with respect to optimizing pore volume per unit mass is not recognized by the prior art. This argument is not persuasive, as optimization of result effective variables is not limited to the prior art. If it is within the artisan's skill to optimize result effective variables, then the test for optimization is satisfied.

*Conclusion*

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

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If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

5/15/06

FOR PATRICK RYAN  
MARK RUTHKOSKY  
PRIMARY EXAMINER  
*Mark Ruthkosky*  
4.2.07